



- 2 -

Babin *et al.*
Appl. No. 10/722,120

Amendments to the Claims

The following is a complete listing of the pending claims and will replace all prior versions and listings of claims in the application.

1. (previously presented) An injection molding apparatus, comprising:
a hot runner manifold, at least one nozzle, and a mold,
wherein the mold defines a mold cavity and a gate into the mold cavity for receiving melt from the nozzle,
wherein the nozzle comprises a nozzle body, a tip, and a nozzle seal attached to the nozzle body and surrounding the tip,
wherein the nozzle body comprises a melt channel therethrough for receiving melt from the manifold,
wherein the tip comprises a tip melt channel therethrough that is downstream from and in fluid communication with the nozzle body melt channel, and is positioned upstream from and in fluid communication with the gate,
wherein the nozzle seal contacts the mold adjacent the gate such that the mold, the nozzle seal and the tip define an annular melt space adjacent the gate through which melt can flow from the tip melt channel to the gate, and
wherein the tip comprises a first material including an exterior surface in the annular melt space, and wherein at least a portion of the exterior surface is coated with a first diamond or diamond-like coating.

- 3 -

Babin *et al.*
Appl. No. 10/722,120

2. (previously presented) An injection molding apparatus according to claim 1, wherein the surfaces of the nozzle seal that are exposed to the annular melt space comprise a second diamond or diamond-like coating.

3. (previously presented) An injection molding apparatus according to claim 2, wherein an interior surface of the tip adjacent the tip melt channel comprises a third diamond or diamond-like coating.

4. (currently amended) An injection molding apparatus according to claim 1, wherein an interior surface of the tip adjacent the tip melt channel comprises [[a]] an additional diamond or diamond-like coating.

5. (previously presented) An injection molding apparatus according to any one of claims 1 to 4, wherein the diamond or diamond-like coating is applied directly to the surface(s).

6. (previously presented) An injection molding apparatus according to any one of claims 1 to 4, wherein the diamond or diamond-like coating is applied to an intermediate layer of a different material applied directly to the surface(s).

7. (original) An injection molding apparatus according to claim 6, wherein the intermediate layer comprises molybdenum.

- 4 -

Babin *et al.*
Appl. No. 10/722,120

8. (previously presented) A nozzle for an injection molding apparatus, the injection molding apparatus having a mold defining a mold cavity and a gate into the mold cavity for receiving melt from the nozzle, the nozzle comprising:

a nozzle body comprising a nozzle body melt channel therethrough for receiving melt from a melt source;

a tip comprising a tip melt channel therethrough that is downstream from and in fluid communication with the nozzle body melt channel, and is adapted to be positioned upstream from and in fluid communication with the gate; and

a nozzle seal attached to the nozzle body and surrounding the tip, the nozzle seal adapted to contact the mold adjacent the gate such that the mold, the nozzle seal and the tip define an annular melt space adjacent the gate through which melt can flow from the tip melt channel to the gate,

wherein the tip comprises a first material including an exterior surface in the annular melt space, and wherein at least a portion of the exterior surface is coated with a first diamond or diamond-like coating.

9. (previously presented) A nozzle according to claim 8, wherein the surfaces of the nozzle seal that are exposed to the annular melt space comprise a second diamond or diamond-like coating.

10. (previously presented) An injection molding apparatus according to claim 9, wherein an interior surface of the tip adjacent the tip melt channel comprises a third diamond or diamond-like coating.

- 5 -

Babin *et al.*
Appl. No. 10/722,120

11. (previously presented) An injection molding apparatus according to claim 8, wherein and interior surface of the tip adjacent the tip melt channel comprises an additional diamond or diamond-like coating.

12. (previously presented) An injection molding apparatus according to any one of claims 8 to 11, wherein the diamond or diamond-like coating is applied directly to the surface(s).

13. (previously presented) An injection molding apparatus according to any one of claims 8 to 11, wherein the diamond or diamond-like coating is applied to an intermediate layer of a different material applied directly to the surface(s).

14. (original) An injection molding apparatus according to claim 13, wherein the intermediate layer comprises molybdenum.

15. (previously presented) A tip for an injection molding nozzle for delivering melt flowing through the nozzle to the gate area of a mold, the tip comprising:

a tip body adapted to be retained by the injection molding nozzle adjacent the gate area of the mold, the tip body including an interior surface and exterior surface;

a tip melt channel extending through the tip body; and

a diamond or diamond-like coating on at least one of said surfaces.

16. (currently amended) A tip according to claim 15, wherein the interior surface of the tip comprises the diamond or diamond-like coating.

- 6 -

Babin *et al.*
Appl. No. 10/722,120

17. (previously presented) A tip according to claim 15 or claim 16, wherein the diamond or diamond-like coating is applied directly to the surface(s).

18. (previously presented) A tip according to claim 15 or claim 16, wherein the diamond or diamond-like coating is applied to an intermediate layer of a different material applied directly to the surface(s).

19. (original) A tip according to claim 18, wherein the intermediate layer comprises molybdenum.